



Seeding New Business Opportunities: NSBRI Industry Forum Programs

National Space Biomedical Research Institute

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**NHHPC Accelerating Innovation Workshop
November 6-7, 2013**

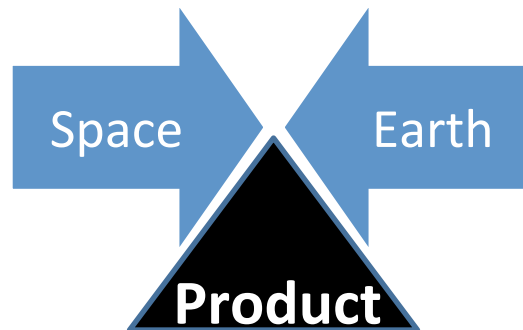


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Industry Forum Mission

- 1) Commercialize biomedical discoveries made for space
- 2) Engage the private sector in developing space-compatible healthcare solutions





SMARTCAP: Space Medical And Related Technologies Commercialization Assistance Program

- Seed funding to small U.S.-based companies
- Transformative health or medical product
- Fulfills a need in space
- Impact on Earth
- Short-duration well-defined projects
- Requires 100% match in funding
- Sound business model
- Indication of financial backing
- Award is non-dilutive funding

2011 SMARTCAP Award



- Fitness-for-duty test Android App
- NSBRI funded development for astronauts on ISS
- Industry partner Schneider National gave 100% match
- App was critical component in a recently completed Federal Motor Carrier Safety Administration-sponsored study that assessed efficacy of a fatigue risk-management platform in commercial truck drivers

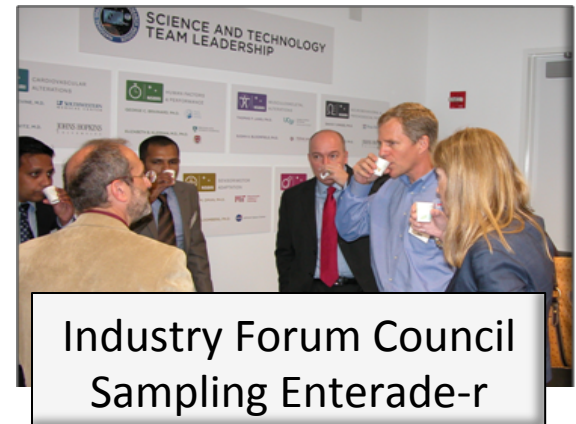
2012 SMARTCAP Award

- ACell, Inc. makes bioactive wound healing products from porcine urinary bladder – diabetes and surgical wounds markets
- Existing sheet and powder products inappropriate for space
- SMARTCAP: developed and tested the efficacy of a gel formulation
- Gel + powder + sheet = Improved efficacy on Earth
- New Earth-market opportunities for gel in ocular and tortuous wounds



2012 SMARTCAP Award

- Enterade, LLC - start-up from Univ. of Florida
- Medical food Enterade-r
- Mitigates gastrointestinal symptoms in irradiated animals
- Earth market is patients receiving radiotherapy and chemotherapy
- Efficacy in mitigating GI effects of proton-irradiation demonstrated



2013 SMARTCAP Award

- Start-up Cerebrotech Medical Systems, Inc.
- Non-invasive continuous monitoring of cerebral fluid volume
- Magnetic induction phase-shift spectroscopy
- Earth market is neuro-intensive care
- Space need is increased intracranial pressure



Cerebrotech's CEO Mitch Levinson
Demonstrates the Technology to the Industry
Forum Steering Council



2013 SMARTCAP-Accelerate Pilot

U.S. - based accelerators nominate up to 2 companies each
100% Match in new funding required

Hypothesis: Companies nominated by accelerators will be able to prepare strong SMARTCAP applications

~100-120 Accelerators in the U.S.

~30 focused on biomedical and health products

SMARTCAP-Accelerate

15 accelerators participated (informational webinar)

10 Accelerators nominated 16 companies (17 proposals)

11 Diagnostic devices

5 Software products

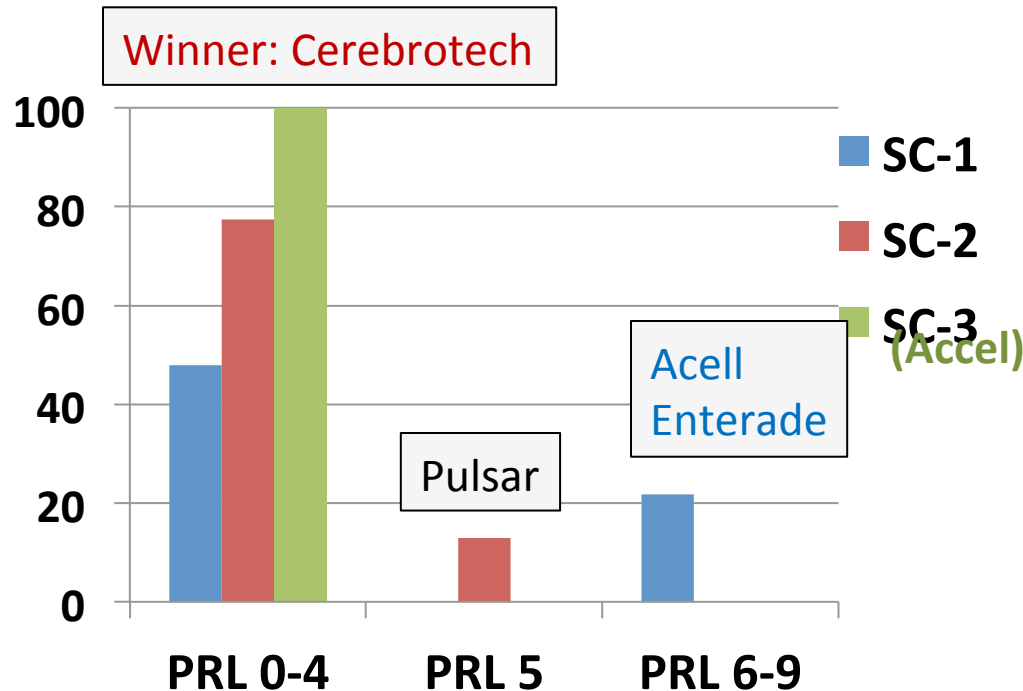
1 Therapeutic product



Participating Accelerators by the Numbers

- 15 from 8 states
- 1/3 in operation 5-14 years; 2/3 in operation 0-3 years
- Graduated companies = 0-361 (most <10 per class; or rolling)
- Half were non-profit
- 60% affiliated with government (city, region, state) or a university
- Life-sciences focus: 80% digital health; 40-50% also in diagnostics/therapeutics; 50% also “other” (e.g., engineering)
- Majority invested cash in their companies (\$20K-\$100K)
- Equity stake ranges of 2-10%

Maturity of Proposed Products In Each SMARTCAP (SC) Solicitation Cycle



Product Readiness Level

Product Readiness Level

PRL1: Market need and technology requirements identified

PRL2: Concept formulated and prototype designed

PRL3: Critical function and/or proof-of-concept achieved

PRL4: Validation/demonstration through user testing

PRL5: Validation/demonstration in target population

PRL6: Regulatory studies in progress, if required

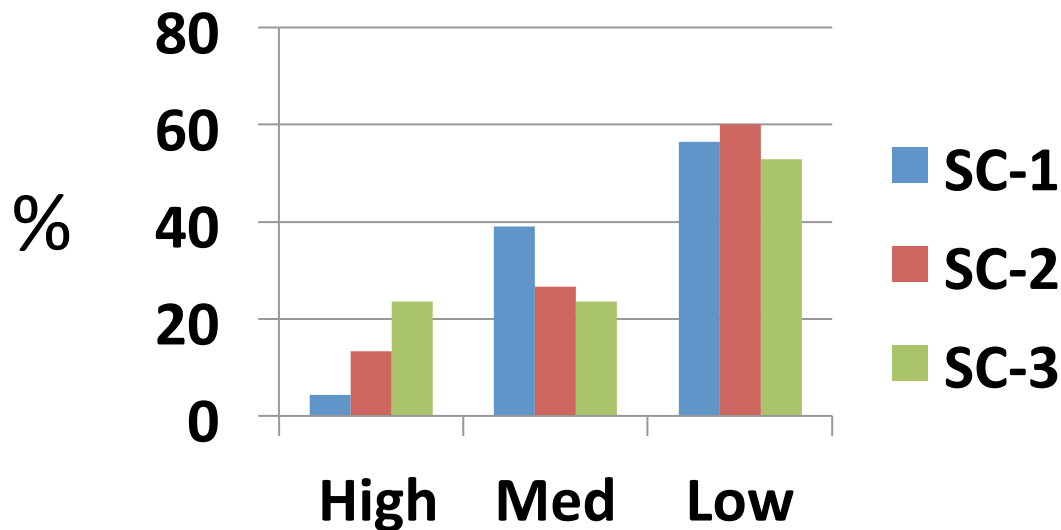
PRL7: Fabricated/integrated in a production environment

PRL8: Regulatory approval (if required)

PRL9: Market ready



Space Programmatic Priority Assessment In Each SMARTCAP (SC) Solicitation Cycle

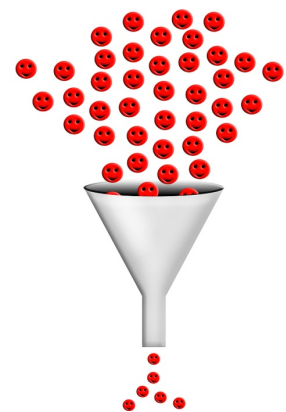


Space Programmatic Priority

Total Proposals=71

SMARTCAP-Accel Lessons Learned

- 1) “Accel” excluded many experienced entrepreneurs
- 2) “Accel” excluded many established small companies
- 3) Success requires a large volume of proposals



- Make initial engagement very easy
(i.e., ask for one-two page summary)
- Don’t require them to identify space need
- Accept “applications” year-round
- Make awards available on a quarterly basis